

PROPOSED LEAKING UST (LUST) CASE CLOSURE

The Arizona Department of Environmental Quality (ADEQ) is considering closure of the following leaking underground storage tank (LUST) cases:

LUST Case File #: 4457.02-.03
Facility ID # 0-004247
Cochise County

Giant #659 (former Texaco #61-351-2088)
101 East 16th Street
Douglas, Arizona 85607

This commercial property (the Site) is located at 101 E. 16th Street in Douglas. Douglas is located in southeastern Arizona in the Sulphur Springs Valley in Cochise County. The valley extends into eastern Sonora, Mexico. The Site is currently being operated as a retail petroleum station and convenience store. The site is owned by Western Refining, Inc. and operates as Giant #659, a branded Chevron station.

A property transfer between Sahara Oil Company and Texaco Refining and Marketing Company in 1996 included a Preliminary Site Assessment (PSA) that included the UST system. Nine soil borings were installed, and soil samples were collected and analyzed on site using a mobile laboratory for total petroleum hydrocarbons (TPH) and select samples were analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX). TPH and/or BTEX was found in the soil at concentrations that exceeded applicable regulatory standards.

ADEQ assigned LUST release numbers 4457.01-.03 in October 1997 based on the soil data collected during the PSA. The UST system was installed in 1986 and is still in use. The UST owner/operator was identified as Texaco Refining and Marketing Company, now Shell Oil Products US (Shell). Shell has conducted corrective actions that included soil and groundwater characterization activities. Several on site and off site monitoring wells were installed beginning in 1996. Historic groundwater monitoring continued between 2000 and 2009 by several different consultants for Shell. Historic volatile organic compound (VOC) concentrations in groundwater have exceeded applicable aquifer water quality standards. (AWQS). A *Corrective Action Plan* was submitted in 2004.

A soil vapor extraction (SVE) system was installed in 1996 and was intermittently used. The SVE system operated until March 2010 when it was converted to dual-phase extraction (DPE). It is not known when the system was stopped. LUST release 4457.01 was closed in April 2010. A pilot study was conducted to evaluate the use of carbon-based injectate (BOS 200®) in 2014, and the results appeared promising since the VOC contamination concentrations decreased in monitoring well (MW)-2 and MW-6, where the injections were done.

In February 2015, Groundwater & Environmental Services, Inc. (GES) assumed management of the site for Shell. GES has conducted quarterly groundwater monitoring since then. Shell submitted a *Corrective Action Completion Report* dated May 4, 2017. Additional groundwater sampling was conducted and Shell submitted a *Corrective Action Completion Report-Addendum* on April 6, 2018. MW-1 and MW-8 show benzene contamination present over AWQS.

A site specific risk assessment and detailed file/information search have been completed. Based upon the results of remedial activities and site specific information provided by GES, the above-referenced LUST

site is eligible for alternative LUST closure under Arizona Revised Statutes (A.R.S.) §49-1005(E). Arizona Administrative Code (A.A.C.) R18-12-263.04 (A) and (B) allows case closure of a LUST site with groundwater contamination above the AWQS or Tier 1 Corrective Action Standards. ADEQ has considered the results of the site specific assessment and the rule specific criteria below:

1. *Threatened or impacted drinking water wells:* The site is situated in Sulphur Springs Valley which is a structural trough that contains the Douglas Basin, which encompasses approximately 950 square miles. The Sulphur Springs Valley is part of a large northwest-trending intermountain valley, which extends into eastern Sonora, Republic of Mexico. The Douglas Basin is characterized by isolated, block-faulted ranges that rise steeply from alluvium-filled valleys. Local subsurface sediments consist predominantly of sand, sandy clay and gravel at various intervals. GES evaluated registered wells within ¼ mile of the site. ADEQ evaluated registered wells located between ¼ and ½ mile from the site. According to the Arizona Department of Water Resources (ADWR), there are 19 registered wells located within ½ mile of the site. Of the 19 registered wells, 14 wells are registered as monitoring or other (many are remediation wells). There are two registered exempt wells, with one within 500 feet of the LUST site. There is no pumping data available for this well, so it is not known if the well is actually used. There are two registered non-exempt wells. There is no pumping data associated with these two wells. According to the ADWR *List of Municipal Water Providers Designated as Having an Assured or Adequate Water Supply* dated January 4, 2018, The City of Douglas has DWR 40-900011.0000. This designation means the City of Douglas has an assured 100 year water supply. Any new or replacement well located at or near this site would need to meet the criteria of A.A.C. R12-18-1302 (B) (3). The City of Douglas Public Water System number is #0402-014. The City of Douglas has 15 wells in their system and none of them are within ½ mile of the LUST site. The City of Douglas was sent a Water Provider Questionnaire and submitted it to ADEQ. The City confirmed their future plans for new wells would be north of the City of Douglas more than 2 miles from the LUST site. City well #7 was located within ½ mile of the LUST site but was abandoned in August 2015 due to other issues.

2. *Other exposure pathways:* Soil boring GES-1-1 showed trimethylbenzenes (TMBs) at one foot bgs that exceeded the residential Soil Remediation Levels (rSRLs). No other VOC concentrations exceeded applicable regulatory standards. GES evaluated the vapor intrusion using the EPA on-line screening version of the Johnson & Ettinger model. The cancer risk for the petroleum related chemicals of concern (CoCs) is 10^{-7} and the non-cancer risk is 0.168. The cancer risk for the non-petroleum related CoCs is 10^{-8} and the non-cancer risk is 0.05. The data supports that there is no unacceptable cancer or non-cancer risk associated with the inhalation exposure pathway. GES evaluated the TMB contamination found in GES-1-1 for dermal and ingestion risk using the EPA Screening Tools for Chemical Contaminants (May 2016). GES determined that the site specific non-carcinogenic screening level for all three exposure routes for 1, 2, 4-TMB is 303 mg/Kg and for 1, 3, 5-TMB it is 270 mg/Kg based on the child scenario. These values exceed the saturation concentrations for these chemicals (218 mg/Kg and 182 mg/Kg, respectively). The output shows that there is no carcinogenic screening level or dermal screening levels for either child or adult. The ingestion screening level from the May 2016 Regional Screening Level table, and from the site specific calculation, for a child is 782 mg/Kg for both TMBs which is a higher concentration than the contamination present in GES-1-1.

The TMB concentrations in GES-1-1 were 71.5 mg/Kg and 25 mg/Kg respectively which exceed the residential SRLs of 52 mg/Kg and 21 mg/Kg, respectively. The non-residential SRLs are 170 mg/Kg and 70 mg/Kg, respectively. The RfD_o for 1, 3, 5-TMB is $1.0e^{-2}$ mg/Kg-day. There is no RfD_o for 1, 2, 4-TMB. There are no cancer slope factor (SFO) values for either TMB. There are no dermal values for TMBs. ADEQ calculated a non-carcinogenic or hazard quotient (HQ) value for a child for incidental

ingestion of soil. The HQ value is 0.21, which is below 1.0 and presents acceptable risk. There are no sensitive receptors like schools, day care centers, etc. within ¼ mile of the site. The site is located in an area that includes commercial, industrial and residential properties. The current use of the property is commercial and is likely to remain commercial use. The adjacent property to the west is an Arizona Department of Corrections facility.

3. *Groundwater plume stability:* From 2004 to present, the depth to groundwater has ranged from approximately 45 to 47 feet bgs. The groundwater gradient is to the southwest since 1996. Monitoring well hydrographs show no consistent correlation between groundwater levels and chemical concentrations. The long-term concentration trend has been decreasing since 1996. GES conducted a trend analysis of benzene in seven monitoring wells using the GSI Mann-Kendall Toolkit for Constituent Trend Analysis. A summary of the analysis for benzene indicates the concentration is decreasing in six of the seven monitoring wells, and has no trend in one of the monitoring wells. GES also utilized a Groundwater Spatiotemporal Data Analysis Tool to further analyze contaminant trends in the dissolved phase plume. Benzene concentration data from 2000 through 2018 was used. The output shows that the bulk of the contaminant mass is located in the central portion of the site near MW-1, MW-2, and MW-4. A significant decrease in contaminant concentration in groundwater is observed from 2002 to 2018. Current groundwater data from March 2018 shows no VOC contamination present in the off-site monitoring wells at concentrations that exceed laboratory reporting limits.

4. *Characterization of the groundwater plume:* Between 1996 and 2009, twenty monitoring wells have been installed. Free product was last reported in 2014 in MW-2. The latest groundwater sampling event was in February 2018. Benzene was reported in MW-1 and MW-8 at a concentration that exceed the aquifer water quality standard (AWQS) of 5 µg/L. Several other VOCs were reported in concentrations less than their respective AWQS, but above laboratory reporting limits. The dissolved benzene plume has been contained to on site.

5. *Natural Attenuation:* GES concluded that decreasing concentration trends demonstrate natural attenuation is occurring. The Mann-Kendall output also supports natural attenuation is occurring. Geochemical parameters were collected. Byproducts of microbial metabolism include ferrous iron and manganese. Manganese concentrations in the groundwater at the source area are substantially higher than in other wells. The depletion of oxygen, nitrate, and sulfate concentrations within the source area also indicate biodegradation is occurring.

6. *Removal or control of the source of contamination:* From 1996 to 2007 and 2009 to 2010 a thermal/catalytic SVE system was in operation. 2,849 pounds of hydrocarbons were extracted between 2009 and 2010. The system was converted to a DPE unit. The DPE unit removed 600 gallons of impacted groundwater.

7. *Requirements of A.R.S. §49-1005(D) and (E):* The results of the corrective action completed at the site assure protection of public health, welfare and the environment, to the extent practicable, the clean-up activities completed at this site allow for the maximum beneficial use of the site, while being reasonable, necessary and cost effective.

8. *Other information that is pertinent to the LUST case closure approval:* The facility and LUST files were reviewed for information regarding prior cleanup activities, prior site uses and operational history of the UST system prior to removal.

Groundwater information: MW-1

Date	Benzene AWQS is 5 µg/L	Depth to water (Feet)
5/24/00	14,000	--
10/23/01	8,600	45.27
10/16/02	11,000	--
10/7/03	11,000	--
12/21/04	5,600	47.15
12/05/05	3,200	46.54
12/14/06	530	46.11
11/13/07	80	44.86
12/9/08	6.4	--
8/26/09	119	--
10/6/10	272	--
12/19/11	303	46.19
10/24/12	596	--
10/24/13	805	45.87
7/29/14	1,890	47.37
10/28/14	<1.0	--
4/9/15	1,790	44.72
7/15/15	27	45.02
10/8/15	<25	44.54
2/23/16	9.3	44.88
2/28/17	<1.0	45.65
9/20/17	1.6	45.46
12/14/17	9.3	46.03
3/14/18	9.5	46.51

Groundwater information: MW-8

Date	Benzene AWQS is 5 µg/L	Depth to water (Feet)
7/24/98	490	47.62
9/8/98	120	47.12
1/25/00	2,400	47.10
5/24/00	1,800	47.14
10/23/01	3,500	45.03
10/16/02	2,200	45.43
10/6/03	3,400	--
12/21/04	4,700	46.90
12/05/05	5,600	46.95
12/14/06	720	45.80
11/13/07	3,000	44.68
11/20/08	100	45.24
8/26/09	13.9	--
10/6/10	17.8	--
12/20/11	1.2	46.05
10/24/12	70.4	--
10/24/13	24.7	45.44
7/29/14	21.9	47.18

10/28/14	7	--
4/9/15	7.7	44.51
7/15/15	<1.0	44.49
10/8/15	<1.0	43.97
2/23/16	7.0	44.95
2/28/17	0.89	45.43
9/20/17	7.20	45.15
12/14/17	175	45.92
3/14/18	29.7	46.45

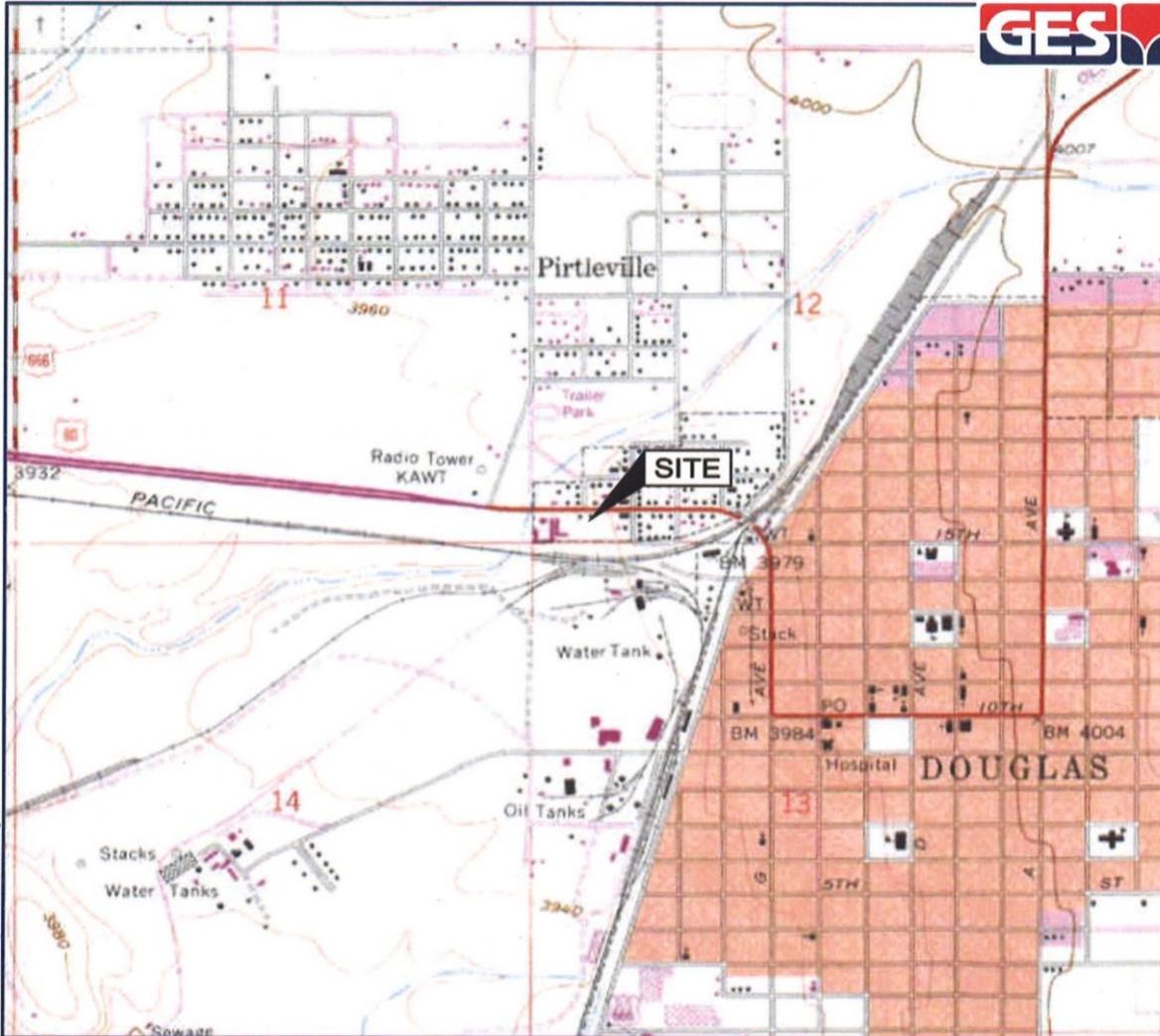
Site specific information concerning this closure is available for review during normal business hours at the ADEQ Records Center <http://www.azdeq.gov/function/assistance/records.html> , 1110 W. Washington St., Suite 140, Phoenix, AZ 85007. ADEQ welcomes comments on the proposed LUST case closure. Please call the Records Center at 602-771-4380 to schedule an appointment. A 30-day public comment period is in effect commencing **June 18, 2018 and July 18, 2018**. Comments should be submitted in writing to the Arizona Department of Environmental Quality, Waste Programs Division, Attention Debi Goodwin, and 1110 W. Washington Street, Phoenix, AZ 85007.

If sufficient public interest is demonstrated during the public comment period, ADEQ will announce and hold a public meeting. ADEQ will respond to written comments following the public comment period. For more information on this notice, please contact the Sr. Risk Assessor, Debi Goodwin at 602-771-4453 or 800-234-5677 ext. 771-4453 or at dgl@azdeq.gov.

Copies of the cited statutes and rules can be found at: <http://www.azleg.gov/ArizonaRevisedStatutes.asp?Title=49>, and http://www.azsos.gov/public_services/Title_18/18-12.html

ADEQ will take reasonable measures to provide access to department services to individuals with limited ability to speak, write, or understand English and/or to those with disabilities. Requests for language interpretation services or for disability accommodations must be made at least 48 hours in advance by contacting: 7-1-1 for TDD; (602) 771-2215 for Disability Accessibility; or Ian Bingham, Title VI Nondiscrimination Coordinator at (602) 771-4322 or idb@azdeq.gov.

ADEQ tomará medidas razonables para proveer acceso a los servicios del departamento para personas con capacidad limitada para hablar, escribir o entender Inglés y / o para las personas con discapacidad. Las solicitudes de servicios de interpretación del lenguaje o de alojamiento de discapacidad deben hacerse por lo menos 48 horas de antelación poniéndose en contacto con Ian Bingham, Title VI Nondiscrimination Coordinator al (602) 771-4322 o idb@azdeq.gov.



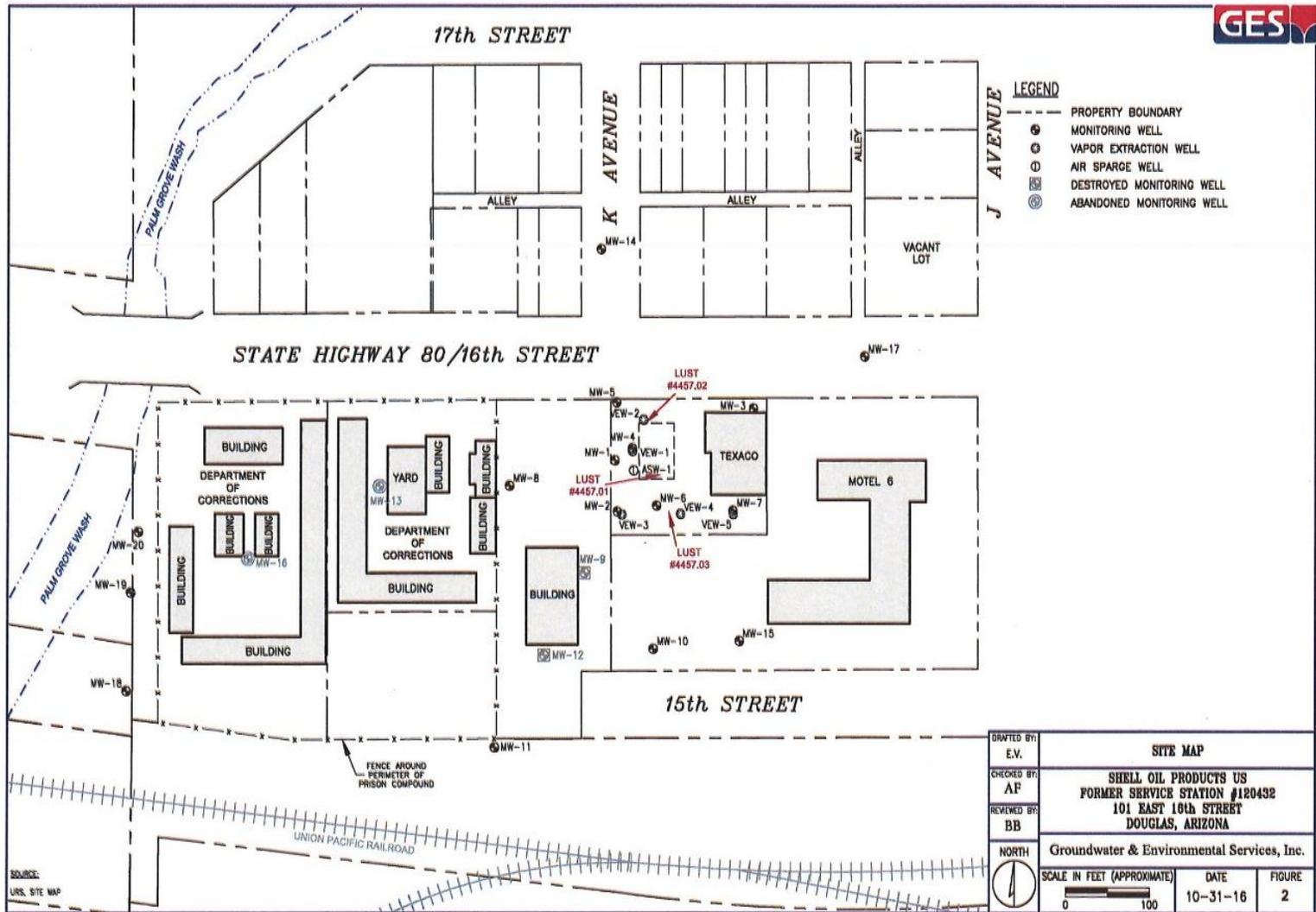
SOURCE: USGS 7.5 MINUTE SERIES
 TOPOGRAPHIC QUADRANGLE 1978
 DOUGLAS, ARIZONA
 CONTOUR INTERVAL = 20'
 TOWNSHIP - 24S
 RANGE - 28E
 SECTION - 11



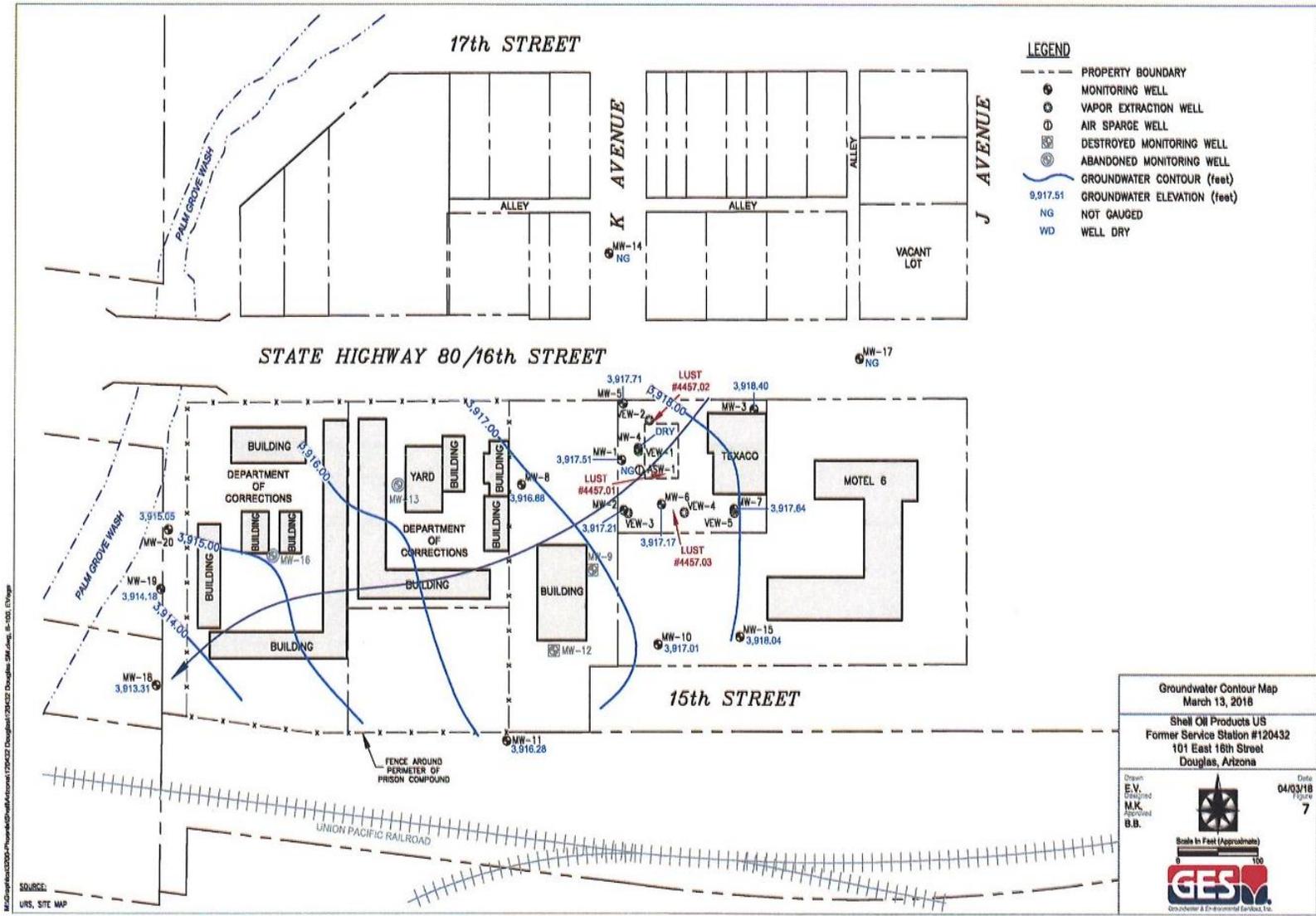
QUADRANGLE LOCATION

DRAFTED BY: E.V. (N.J.)	SITE LOCATION MAP	
CHECKED BY: MK		
REVIEWED BY: BB		
NORTH	Groundwater & Environmental Services, Inc.	
	SCALE IN FEET	DATE
		6-8-15
		FIGURE
		1

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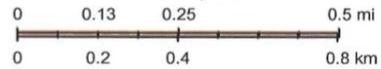


Texaco #61-351-2088



June 5, 2018

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Arizona Department of Water Resources. Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS

Arizona Department of Water Resources



Email completed form to: dq1@azdeq.gov

UST- LUST Section
GROUNDWATER USE QUESTIONNAIRE

LUST FACILITY NAME former Texaco #61-351-2088/Shell #120432
ADDRESS 101 East 16th Street, Douglas
LUST FACILITY ID 0-004247
LUST CASE NO 4457.02, .03

Please answer all questions. Mark "UNK" if the answer is unknown to you at the time of completion. Please attach any additional pages as needed.

Water user municipality/utility name: City of Douglas

Date Questionnaire was completed: JUNE 5, 2018

Contact Name: DAVID GONZALES

Title: UTILITIES SUPERVISOR

Address: 425 10 STREET

DOUGLAS AZ, 85607

Phone Number: OFFICE #520-417-7536

Email address: david.gonzales@douglasaz.gov

1. Please indicate current or near future anticipated groundwater development by the municipality/utility within 1 mile of the above named LUST site.
OUR FUTURE PLANS FOR NEW WELLS ARE NORTH OF DOUGLAS MORE THEN 2 MILES FROM LUST SITE.

2. What is the future use (up to 100 years) for groundwater within 1 mile of the above named LUST site?

UNK.

3. Is the municipality/utility currently sampling groundwater wells within 1 mile of the above named LUST site? If so, how often is the sampling conducted? Are analytical results being submitted electronically to ADEQ's the groundwater database? If not, will you share the data with ADEQ?

WE SAMPLE FOR BAC'T ONCE PER MONTH AND AT WELL SITES FOR SOC'S, VOC'S, SMURF'S QUARTERLY OR AS NEEDED.

LEGEND LAB REPORTS RESULTS TO ADEQ.

4. Are there any groundwater wells owned by the water provider that are known to have been affected by the above named LUST site? If so, please list the ADWR well identification numbers. What is the current status of these wells (e.g.- shut down, still pumping)?

NONE.

5. What is the future use (up to 100 years) for any wells that have been impacted by the LUST SITE NAME? **WELL # 7 THE CLOSEST WELL TO LUST SITE WAS ABANDONED IN AUGUST 2015.**

6. Is there any other information you wish to provide to assist ADEQ in the LUST case closure evaluation of this site?

NOT AT THIS TIME, BUT IF YOU NEED ADDITIONAL INFORMATION DON'T HESITATE TO CALL ME...

MY CELL # 520-234-1817